The Ideas Lab

A New Creative Environment

NHHPC Workshop
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The IDEAS Factory

- Begun by UK EPSRC (2004) to explore novel ways for generating innovative high risk research projects on selected topics
- Key element - the "Sandpit"
  - Intensive, interactive, 5-day experience in which an intellectually diverse group of 20-30 people develop innovative ideas and solutions

In 2009, NSF and EPSCR co-sponsored a sandpit in synthetic biology,

which became the basis for the NSF-BIO Ideas Lab

Ideas Lab Goal

1. Address an intractable question, usually in a research area with a sustained track record that is nonetheless stuck in repetitious and/or incremental efforts

2. Scoped for time and budget

Who is Involved?

- Director and Mentors - focus on topic
  - "Honest brokers" - Not eligible for funding
  - Provide real-time peer review
- Facilitators - focus on process
  - Help design the Ideas Lab experience
  - Facilitate interactions; develop creative environment
- Participants (20-30) - recruited from a variety of disciplines by an open call
- Stakeholders - provide knowledge of current policy, practices, and resources (government agencies, NGOs, non-profits, private sector, academia)

Selection Process

1. Director recruits 4-5 Mentors (similar to an NSF review panel or site-visit team)
2. Open, widely-advertised, call for participants
3. 2-page application (similar to a pre-proposal)
   - Knowledge and expertise
   - Personal attributes (communication skills, collaborative experience, creative activity)
4. Occupational psychologist reviews applications
   - Diversity is key: Variety of disciplines, diverse backgrounds and career levels, mix of personal attributes increases group's willingness to take risks and encourages creativity
5. Participants are selected by Mentors and Director taking into consideration the recommendations of the occupational psychologist

Ideas Lab: What It Is

- Intensive and interactive
- Multidisciplinary
- Novel networking opportunities
- Employs real-time iterative peer review
- Professional facilitator (*Knowinnovation*):
  - Challenges risk-averse and collaboration-averse attitudes
  - Promotes creative thinking

Ideas Lab: What It Is Not

- Typical Workshop or Committee Meeting
- Technical presentations
- Limited to a single discipline
- Incremental research support
- Disconnected from funding plans

What do the participants do?

- Define scope
- Agree on common language and terminology
- Share understanding, expertise and experience
- Participate in iterative development of new ideas
- Use creative and innovative thinking techniques

Real-Time Project Development and Peer Review

- Iterative approach to develop ideas & priorities
- Short presentations to the whole group (enforced time-limit)
- Anonymous feedback from the whole group (pros and cons; "sticky notes")
- Regular feedback and advice from Director and Mentors
- Speedy decision about ideas selected for full proposals

What Happens After?

- Invited groups submit full proposals in ~ 3 months
- Full proposal review by Director and Mentors:
  - Consistent with selected project areas
  - Intellectual merit
  - Degree of novelty
  - Complementary to the other projects
- Types of awards (non-renewable):
  - Large collaborative consortia (3-5 yrs)
  - Individual or linked projects (3-5 yrs)
  - Smaller feasibility studies (1-2 yrs)
  - Research Collaboration Network (RCN)
- Director-Mentors-PIs meet ~ 18 months post award to evaluate collaboration & progress

BIO Ideas Labs

1. New Directions in Synthetic Biology (NSF and UK-EPSRC; April 2009)
2. Innovations in Biological Instrumentation and Visualization (NSF; May 2010)
3. Surpassing Evolution: Transformative Approaches to Enhance the Efficiency of Photosynthesis (NSF and UK-BBSRC; September 2010)
4. Assembling, Visualizing, and Analyzing the Tree of Life (NSF; August 2011)
5. Nitrogen Utilization in Plants (NSF and UK-BBSRC; December 2012) – *see NSF Press Release 13-147 (Aug 21, 2013)*